

ABSTRACT

MULTI-STATE GENETIC OSCILLATOR

5 Provided are methods and compositions for regulating gene expression in a cell. The invention provides recombinant multi-state genetic oscillators containing an adjustable-threshold genetic switch that is periodically activated by an oscillating amount of an activator agent. The activating agent is a gene product expressed from a promoter regulated by the adjustable-threshold switch and thus forms a feedback loop that causes periodic switching of the adjustable-
10 threshold switch between an "on" state and an "off" state. Multi-state genetic oscillators are useful to express one or more genes of interest in a periodic manner without requiring a periodic application of an external activating agent.

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